

Claims

1. A nozzle for atomising a liquid by means of a gas, comprising a mixing chamber (1) extending between an upstream end (3a) and a downstream end, at least one liquid inlet (6c) and at least one tangential gas inlet (5) to said mixing chamber, and an outlet (4) positioned at the downstream end of said mixing chamber (1), characterized in that a centre body (2) having a generally converging configuration, seen in the flow direction, is provided in the mixing chamber (1), and that said at least one liquid inlet (6c) is positioned at or near the upstream end (3a) of said mixing chamber (1) and in the upstream direction with respect to said at least one gas inlet (5).

2. A nozzle as claimed in claim 1, wherein the centre body (2) comprises a cylindrical base portion (2a) and a converging portion (2b).

3. A nozzle according to any one of claims 1 to 2, wherein the downstream end of said centre body (2) is positioned outside the outlet (4) of the nozzle.

4. A nozzle according to any one of claims 1 to 3, wherein the mixing chamber (1) comprises a cylindrical portion and a converging portion, said at least one gas inlet (5) being provided in the cylindrical portion.

5. A nozzle according to any one of claims 1 to 4, wherein said mixing chamber (1) is provided in a chamber part (9).

6. A nozzle according to any one of claims 1 to 5, wherein the centre body (2) forms an integral part of an insert (10).

7. A nozzle according to claim 6, wherein the in-

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sert (10) comprises a disk portion (23) positioned at the upstream end of the centre body (2), said disk portion (23) forming at its downstream face (3) the upstream end of said mixing chamber (1).

5        8. A nozzle according to claim 6 or 7, wherein said insert (10) at its upstream end is connected with a bottom part (7), which in turn is connected with a cap part (8), said chamber part (9) being positioned within said cap part (8) and in connection  
10 with said insert (10).

9. A nozzle according to any one of claims 1 to 8, wherein one gas inlet (5) is provided tangentially with respect to the inner circumference of the mixing chamber (1).

15       10. A nozzle according to any one of claims 1 to 9, wherein said centre body (2) is adjustable in the axial direction.

11. A method of atomising a liquid by means of a gas in a nozzle according to any one of claims 1 to  
20 10, wherein the area of the gap defined between the inner periphery of the outlet (4) and the centre body (2) is designed and a gas pressure chosen so that two sonic jumps takes place during operation, a first jump taking place when the gas enters the mixing  
25 chamber (1), and a second jump when the gas-liquid mixture leaves through the outlet gap (4).

12. A method according to claim 11, wherein said method is for spray drying, spray cooling, agglomeration or spray coating.

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